KHIRYAYEV, A. A.

Textile machinery.

New ribbon splicing machine., Tekst. prom., no. 1, 1952.

9. Monthly List of Russian Accessions, Library of Congress, March 1953, Uncl.

MELIAMIV, A.

All-Union Conference on the theory of probabilities and mathematical statistics. Zav. lab. 30 no.5:639 '64.
(MIRA 17:5)

GOLUBEV, Ye.K., inzh.; SHIRYAYEV, A.A., inzh.

ISV-120 evaporator with two-stage steam scrubbing. Teploenergetika 11 no.4:31-34 Ap '64. (MIRA 17:6)

1. Moskovskoye otdeleniye TSentral'nogo kotloturbinnogo instituta.

SHIRYAYEV, A. F.

SHIRYAYEV, A.F.; GRIGORYEV, I.I., inzhener, retsenzent; ZAKHAROV, B.P., inzhener, redaktor; DUGINA, N.A., tekhnicheskiy redaktor.

[Work practice of a forge shop; from the experience of the Ural Railroad Car Factory] Opyt raboty kuznechnogo tsekha; iz praktiki Uralvagonzavoda. Sverdlovsk, Gos. nauchno-tekhn. Izd-vo mashinostroit. i sudostroit. lit-ry [Uralo-Sibirskoe otd-nie] 1953. 186 p. (MLRA 7:8)
(Forging)

SHIRYAYEV, A.F.; DUGINA, N.A., tekhnicheskiy redaktor

[Mechanizing forging work in the Urals Railroad Car Factory] Mekhanizatsiia kuznechnogo proizvodstva na uralvagonzavode. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1954. 31 p.(MLRA 8:7)
(Forging)

SHIRYAYEV, A.F., inzh., red.; KOMAROV, K.I., inzh., red.; DUGINA, N.A., tekhn. red.

[Improving the technology of founding] Sovershenstvovanie tekhnologii liteinogo proizvodstva. Moskva, Gos. nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1961. 138 p.
(MIRA 15:2)

1. Uralvagonzavod, Nizhniy Tagil.
(Founding)

SHIRYAYEV, A.F., inzh., red.; ROYTMAN, L.Kh., inzh., red.; DUGINA, N.A., tekhn. red.

[Progressive heat treating techniques] Peredovaia tekhnologiia termicheskoi obrabotki. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1961. 143 p. (MIRA 15:3)

1. Uralvagonzavod, Nizhniy Tail.
(Steel—Heat treatment)
(Furnaces, Heat-treating)

SHIGAYEV, A.F., inzh., red.; DUGINA, N.A., tekhn. red.

[Progressive forging technology] Progressivnaia tekhnologiia kovki i shtampovki. Moskva, Gos. nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1961. 156 p. (MIRA 15:1)

1. Uralvagonzavod, Nizhniy Tagil.
(Forging)

AUTHOR: Shiryayev, A.G., and Likholet, Ye.I.

TITLE: Boring Holes in Housing Components on Radial Drilling Machines (Rastachivaniye otverstiy v korpusnykh Detalyakh na radial'no-sverlil'nykh stankakh)

PERIODICAL: Stanki I Instrument, 1957, No. 1. pp 8-10 (U.S.S.R.)

ABSTRACT: Orgstankinprom has developed a production method which is used at the Machine Tool Plant imeni Sedina (Stankozavod Imeni Sedina) to machine gear box housings for vertical lathes. Tools, tool holders and fixtures in production sequence are described in boring holes in a machine tool housing component to the second degree of accuracy, while maintaining the combined geometric tolerances below 0.2 mm by drilling, reaming and sinking on a radial drill while the component is clamped in a drill jig with long interchangeable drill bushes. The tool holders have "Tufnol" sleeves which fit into the drill bushes. Wear tests for the

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TITLE: Boring Holes in Housing Components on Radial Drilling Machines (Rastachivaniye otverstiy v korpusnykh Detalyakh na radial'no-sverlil'nykh stankakh)

"Tufnol" sleeve are reported, showing that when frictional heat causes temperatures between 300 and 320°C, the swelling and wear processes first increase the diameter (64 mm) by about 16 microns until gradual wear restores the initial dimension after six hours. Large economies are claimed in this method. The test includes 3 photographs, and 8 diagrams.

Available: Library of Congress

Card 2/2

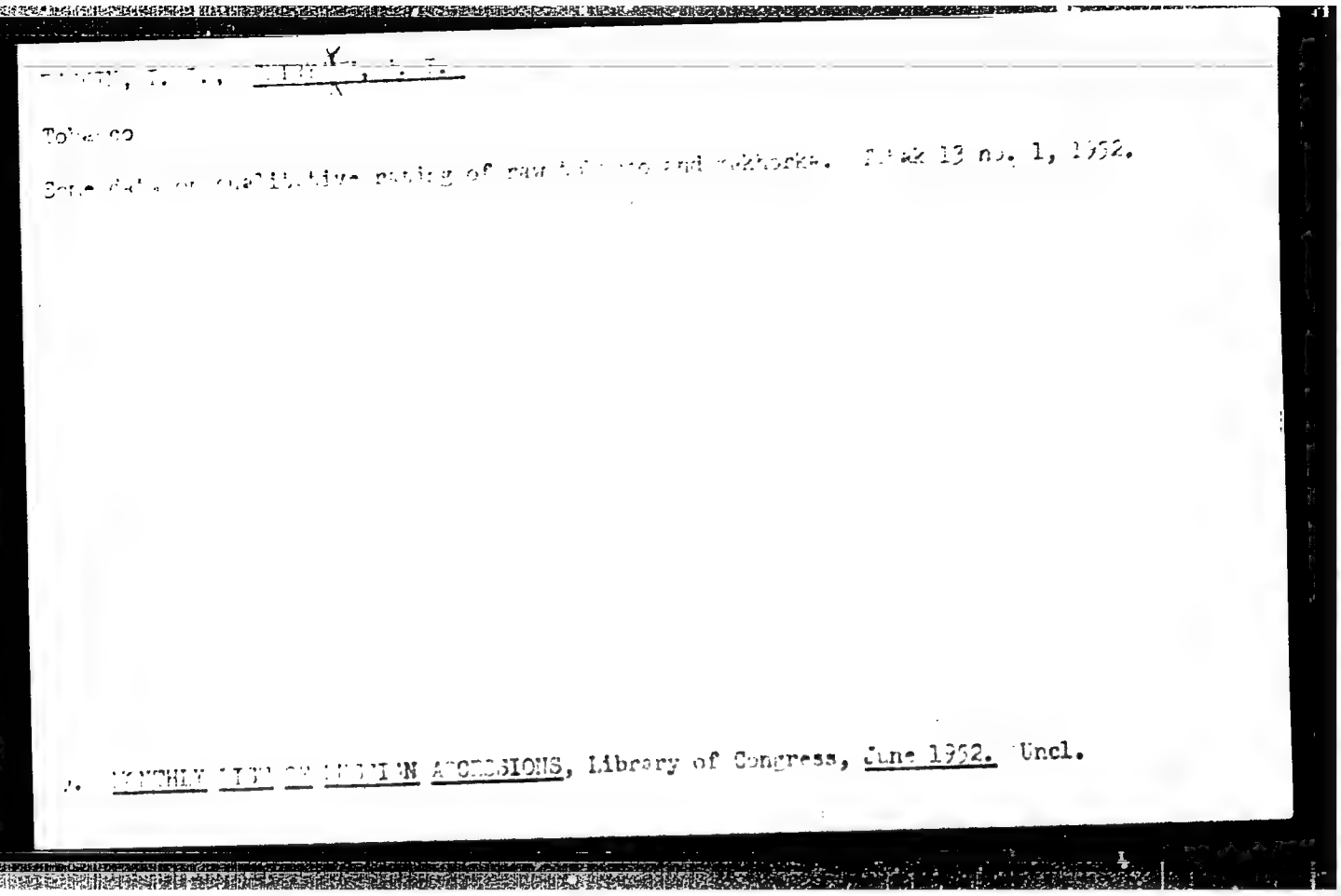
SHIRYAYEV, A.G.

The LK-022 bench grinding machine. Stan.i instr. 29 no.12:20-21 D '58. (MIRA 11:12)

(Grinding machines)

MARTINSON, Ye.N.; ZAKHAROVA, M.P.; ALASHKEVICH, M.L.; KHOKHLOV, I.M.; KHOKHLOV, I.M.; SHIRYAYEV, A.G.; KASTORNYKH, M.S.

Obtaining vitamin E concentrates by means of high-vacuum distillation. Trudy VNIVI 6:75-81 '59. (MIRA 13:7)
(DISTILLATION) (TOCOPHEROL)



[illegible], I. . ., [illegible]

Tobacco

Some data on qualitative sorting of raw [illegible] and tobacco. Tabak 13 no. 1, 1952.

. MONTHLY LIST OF RUSSIAN ACCESSIONS, Library of Congress, June 1952. Uncl.

SHIRYAYEV, A.I.

ARTEM'YEV, Yu.N., kandidat tekhnicheskikh nauk; ALEKSEYEV, I.A., inzhener; ASTVATSATUROV, G.G., inzhener; BISNOVATYY, S.I., inzhener; BONDARENKO, A.F., inzhener; GURAL'NIK, Ye.L., inzhener; GORBUNOV, M.F., inzhener; ZLATKOVSKIY, A.P., kandidat tekhnicheskikh nauk; KATTS, N.V., inzhener, KITAYEV, A.S., inzhener; KOZLOV, A.M., inzhener; LEONOV, P.T., inzhener; LIVSHITS, L.G., kandidat tekhnicheskikh nauk; LIBERMAN, A.R., inzhener; LINNIK, Ye.M., inzhener; LUKANOV, M.A., inzhener; MOROZOV, S.A., inzhener; POGORELYY, I.P., kandidat tekhnicheskikh nauk; PETROV, S.A., kandidat tekhnicheskikh nauk; PYATETSKIY, B.G., inzhener; RABOCHIY, L.G., kandidat tekhnicheskikh nauk; SELIVANOV, A.I., kandidat tekhnicheskikh nauk; FERBERG, B.S., kandidat tekhnicheskikh nauk; CHISTYAKOV, V.D., inzhener; CHUNIKHIN, V.M., inzhener; SHIRYAYEV, A.I., inzhener; SHCHUPAK, A.D., inzhener; KUCHUMOV, P.S., inzhener, redaktor; PETROV, S.A.; PESTRYAKOV, A.I., redaktor; BALLOD, A.I., tekhnicheskiy redaktor.

[Handbook of equipment for repairing tractors and agricultural machinery] Spravochnik po oborudovaniiu dlia remonta traktorov i sel'skokhoziaistvennykh mashin. Moskva, Gos. izd-vo selkhoz. lit-ry, 1954. 646 p. (MLRA 7:11)

(Tractors--Repairing) (Agricultural machinery--Maintenance and repair)

SHIRYAYEV, A.M., inzhener.

Portable machine for cutting flanges. Stroi.pred.neft.prom. 1 no.9:20-21 N '56. (MIRA 10:1)
(Cutting machines)

A. M. SHIRYAYEV and KRUT'YEV, K. U.

"Overall Utilization of the Waste Products of Hydrolytic Processes - A Way of Reducing Production Costs"

The Kirov District of Leningrad Strives for Technological Progress; Collection of Articles, Leningrad, Sudpromgiz, 1957. 171pp.

This collection of articles describes the progressive experiance of the industrial plants of the Kirov district of the city of Leningrad in the fields of shipbuilding, machine building, instrument-making, casting, hydrolytic and other industries. New manufacturing methods are discussed.

SHIRYAYEV, A.M.

Paper pipes to replace steel gas pipes in electrical installations. Biul.tekh.inform. 3 no.7:8-10 Jl '57. (MIRA 10:10)

1. Glavnyy inzhener tresta Elektromontazh-55.
(Pipe) (Electric wiring, Interior)

Shiryayev, A.M.

ANDREYEV, K.P.; BOBOREKO, E.A.; IGNAT'YEV, I.S.; ZELENSHCHIKOV, A.V.; BELYAYEVSKIY, I.A.; SHIRYAYEV, A.M.; SAPIRO, M.M.

Steam injection cooling of stillage. Gidroliz. i lesokhim. prom. 10 no.7:30-32 '57. (MIRA 10:12)

1.Vsesoyuznyy nauchno-issledovatel'skiy institut gidrolizmoy i sul'fitnospirtovoy promyshlennosti (for Andreyev, Boboreko, Ignat'yeva, Zelenshchikova). 2.Leningradskiy gidrolizmyy zavod (for Belyayevskiy, Shiryayev, Sapiro).
(Alcohol)

SHIRYAYEV, A.M., inzh.; GOLUBEV, V.N., inzh.

Steel foil reinforced crimped paper pipes for electric wirings. (MIRA 11:8)
Biul. tekh. inform. 4 no.8:19-20 Ag '58.
(Pipes) (Electric wiring)

SHIRYAYEV, A.M. (Ufa)

Thawing frozen ground with a gas-heated device. Osn., fund. i mekh. grun. 3 no.5:7 '61. (MIRA 14:11)

(Frozen ground)

SHIRYAYEV, A.M.; KLYUSHKIN, I.Ye.

Correlation of the properties of hard electrolytic iron deposits. Zhur. fiz. khim. 37 no.12:2663-2667 D '63. (MIRA 17:1)

1. Saratovskiy politekhnicheskiy institut.

L 34[illegible]-66 [illegible] IJP(c) JD/JW/HW/EM

ACC NR: AP6017604 (A) SOURCE CODE: UR/0364/66/002/002/0155/0159

AUTHOR: Klyushkin, I. Ye.; Shiryayev, A. M. 37 B

ORG: Saratov Polytechnical Institute (Saratovskiy politekhnicheskiy institut)

TITLE: Internal stresses in deposits of solid electrolytic iron-nickel alloy

SOURCE: Elektrokhimiya, v. 2, no. 2, 1966, 155-159

TOPIC TAGS: iron alloy, nickel alloy, electrolytic deposition, internal stress

ABSTRACT: The authors study internal stresses in an iron-nickel alloy produced by electrolysis with a soluble anode of Armco iron in an electrolyte similar in composition and concentration to those used in industrial conditions (200±5 g/ℓ $FeCl_2 \cdot 4H_2O$+(0-50)±2 g/ℓ $NiCl_2 \cdot 6H_2O$ (1-6) g/ℓ HCl). Curves are given showing the internal stresses in the specimen as a function of current density and nickelous chloride concentration in the electrolyte. Curves are also given showing the internal stresses and hardness of pure iron and iron-nickel deposits as functions of temperature, electrolytic acidity and current density. The effect of current density and temperature on the critical thickness (before crack formation) of pure iron and iron-nickel deposits was also studied. It was found that residual stresses increase with current density in iron-nickel alloy deposits 2 μ thick. This increase is much more rapid at current densities of 5-20 a/dm^2 than in the 20-40 a/dm^2 range. Internal stresses

Card 1/2 UDC: 621.357.7

ACC NR: AP6017604

increase with nickelous chloride concentration reaching an absolute maximum at a concentration of 20 g/ℓ $NiCl_2O$ (2.5-2.7% Ni in the alloy). This behavior is similar for various current densities although the initial increase in internal stresses is sharper in the 5-10 a/dm^2 range than at current densities of 15-40 a/dm^2 while the reduction after a concentration of 20 g/ℓ is reached is approximately the same for all current densities. It was found that internal stresses in solid electrolytic iron-nickel alloys are higher than in electrolytic deposits of pure iron. There is an increase in internal stresses and hardness in both pure and iron-nickel deposits with a reduction in temperature and increase in current densities. Increasing electrolyte acidity gradually reduces internal stresses in pure iron deposits while increasing those in iron-nickel alloy to an absolute maximum after which a reduction is observed. It is shown that the behavior of internal stresses and hardness in electrolytic iron-nickel alloy is basically due to overstress during deposition of the metal at the cathode. Orig. art. has: 5 figures.

SUB CODE: 11/ SUBM DATE: 17May65/ ORIG REF: 009/ OTH REF: 000

Card 2/2

SHIRYAYEV, A. N.

SOV/52-2-4-7/7

A Summary of Papers Presented at the Sessions of the Scientific Research Seminar on the Theory of Probabilities., Moscow, Feb- May 1957

Teoriya Veroyatnostey i yeye Primeneniya, 1957, v. 2, No. 4, pp. 478-88

Feller processes and non-degenerative parabolic equations. Contents are to be published in this journal. Ososkov, G.A., A limit theorem for flows with a restricted dependence. The contents were published in Vol.1, Nr.2 of this journal. Shiryayev, A.N., A central limit theorem for multiply non-homogeneous Markov chains. Two limit theorems are proved for the normalised sum of stochastic quantities connected in a multiply non-homogeneous chain of order μ. Fortus, M., A uniform limit theorem for distributions approaching a stable law with an index less than one. The sums of independent stochastic quantities are distributed according to the law $F(x)$. The function $F(x)$ belongs to the domain of normal attraction (prityazheniye) of a stable law $F_{\alpha,\beta}(x)$ (α and β are parameters of the distribution) and $\alpha < 1$.

$$F_n(x) = \underline{P}\left\{\frac{S_n}{n^{1/\alpha}} < x\right\},$$

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16(1),16(2)

AUTHORS: Leonov, V.P., and Shiryayev, A.N. SOV/52-4-3-7/10

TITLE: On the Technics of the Calculation of Semiinvariants

PERIODICAL: Teoriya veroyatnostey i yeye primeneniye, 1959, Vol 4, Nr 3, pp 342-355 (USSR)

ABSTRACT: The calculation of higher moments and semiinvariants for the investigation of nonlinear transformation of random processes is very complicated [Ref 1,2]. Cherenkov [Ref 3] stated that in some cases after the determination of the dependence of the moments m_η of the polynomial $\eta = Q(\xi)$ on the semi-invariants s_ξ of the process $\xi(t)$ the semiinvariants of the process $\eta(t)$ can be obtained by a simple cancellation of certain superfluous terms. The authors show that this method is possible in much more general cases and they give rules for the application. The authors thank A.N.Kolmogorov for the theme and aid.
There are 2 figures, and 3 Soviet references.

SUBMITTED: March 5, 1959

Card 1/1

SHIRYAYEV, A.N.

Some problems in the spectral theory of higher order moments: Part 1. Teor. veroiat. i ee prim. 5 no.3:293-313 '60. (MIRA 13:9)

1. Matematicheskiy institut im. V.A.Steklova Akademii nauk SSSR.

(Probabilities)

S/054/60/005/004/006/007
B 111/ C 333

16.6100

AUTHORS: Leonov, V. P. (Deceased), Shiryayev, A. N.

TITLE: Some Problems in the Spectral Theory of Higher-Order Moments.II

PERIODICAL: Teoriya veroyatnostey i yeye primeneniye, 1960, Vol.5, No. 4, pp. 460-464

TEXT: The paper starts from (Ref.1) and uses the notations of (Ref.1).

Definition: The family of random processes $\xi_\alpha(t) \in T^{(1)}$ converges for $\alpha \to \alpha_0$ in the sense of $\mathfrak{S}_1$ to the random process $\xi(t) \in T^{(1)}$, if the distribution of the random variables $(\xi_\alpha, g) = \int \xi_\alpha(t) g(dt)$ converges weakly to the distribution of the random variables $(\xi, g) = \int \xi(t)\, g\,(dt)$ for every $g \in \mathfrak{S}_1$ and $\alpha \to \alpha_0$.

Theorem 1: Assume that the family of the processes $\xi_\lambda(t) = \int R(t,\tau)\, N_\lambda(d\tau)$ satisfies the conditions of the example 2 of § 1 of (Ref.1), where $M\, N_\lambda(T) = 0$, $\ln M\, e^{i\alpha N_\lambda(T)} = \mathfrak{S}_\lambda(T)\, \psi(\alpha)$, $\mathfrak{S}_\lambda(T) = \lambda\, \mathfrak{S}(T)$. Then for $\lambda \to \infty$ the family of the processes $\eta_\lambda(t) = \frac{1}{\sqrt{\lambda}}\, \xi_\lambda(t)$ converges in the sense of

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Some Problems in the Spectral Theory of Higher-Order Moments. II

σ_1 to the Gaussian process $\eta(t)$ with $M\eta(t) = 0$ and $M\eta(t_1)\eta(t_2) = \|K\| \int R(t_1, \tau) R(t_2, \tau) \sigma(d\tau)$, where $\|K\| = \int K(dx)$.

Two theorems are given on "the normalization of a wide-band stationary process when passing through a narrow-band filter" in the case of the processes of the class $\Delta^{(\infty)}$.

Theorem 2: Let 1.) $\xi(t) \in \Delta^{(\infty)}$, $M\xi(t) = 0$, $|f_\xi^{(k)}(\lambda)| \leq A_k < \infty$, $k \geq 2$ and $f(\lambda) = f_\xi^{(2)}(\lambda, -\lambda)$ be continuous in $\lambda_1, \ldots, \lambda_n$, $\lambda_j \geq 0$, $\lambda_i \neq \lambda_j$ for $i \neq j$. 2.) $\sigma_\alpha^{(j)}(\lambda)$, $1 \leq j \leq n$ be a family of complex Baer functions for which

a) $\sigma_\alpha^{(j)}(-\lambda) = \sigma_\alpha^{(j)}(\lambda)$ b) $\int_{-\infty}^{\infty} |\sigma_\alpha^{(j)}(\lambda)|^2 d\lambda = 1$

c) λ_0, C (independent of j and α) exist so that for $|\lambda| \geq \lambda_0$ and all j, α it holds $|\sigma_\alpha^{(j)}(\lambda)| < \frac{C}{|\lambda|}$ d) for every $\varepsilon > 0$ it holds

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Some Problems in the Spectral Theory of Higher-Order Moments. II

$$\lim_{\alpha \to \alpha_0} \int_{\substack{|\lambda + \lambda_j| > \varepsilon \\ |\lambda - \lambda_j| > \varepsilon}} \left| \sigma_\alpha^{(j)}(\lambda) \right|^2 d\lambda = 0$$

Then the random vector $\eta_\alpha^{(j)} = \int \sigma_\alpha^{(j)}(\lambda)\, X_\xi(d\lambda)$, $1 \leq j \leq n$ is asymptotically normal for $\alpha \to \alpha_0$ with vanishing mean values and with the correlation matrix

$$\begin{pmatrix} f(\lambda_1) & 0 & \cdots & 0 \\ 0 & f(\lambda_2) & \cdots & 0 \\ \cdots & \cdots & \cdots & \cdots \\ 0 & & & f(\lambda_n) \end{pmatrix}$$

Theorem 3: Let $\xi(t) \in \Delta^{(\infty)}$, $M\xi(t) = 0$, $\left| f_\xi^{(k)}(\lambda) \right| \leq A_k$ ($k \geq 2$). $f(\lambda) = f_\xi^{(2)}(\lambda, -\lambda)$ be continuous for $\lambda = 0$ and

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Some Problems in the Spectral Theory of Higher-Order Moments. II

$f(0) = f_0 > 0$, $G(\lambda)$ a Baer function, where a) $G(-\lambda) = G(\lambda)$ b) $\int_{-\infty}^{\infty} |G(\lambda)|^2 d\lambda < \infty$ c) λ_0, C exist such that $|G(\lambda)| \leq \frac{C}{|\lambda|}$ for $|\lambda| \geq \lambda_0$. Let α be a real parameter,

(2) $\eta_\alpha(t) = \sqrt{\alpha}\, \xi(\alpha t)$

let the spectral representation of η be

(3) $\eta_\alpha(t) = \int e^{i\lambda t} Y_\alpha(d\lambda)$.

Let

(4) $\xi_\alpha(t) = \int_{-\infty}^{\infty} e^{i\lambda t} G(\lambda)\, Y_\alpha(d\lambda)$

The family of processes defined by (2) - (3) - (4) converges in the sense $\mathcal{O}_f$, for $\alpha \to \infty$ to a Gaussian stationary process with the mean zero and the spectral density $f_0 |G(\lambda)|^2$

Card 4/5

SHIRYAYEV, A. N., Izvest. Phys-Math. Sci. (USSR) "Problem of Most Rapid Detection of Disruptions of a Stationary System." Moscow, 1961, 6 pp (Acad. of Sci. USSR, Math. Institut. im. V. A. Steklov) [illegible] articles (KL Supp 12-61, 284).

S/020/61/138/004/004/023
C111/C333

AUTHOR: Shiryayev, A.N.

TITLE: The detection of spontaneous effects

PERIODICAL: Akademiya nauk SSSR. Doklady, v.138, no.4,1961, 799-801

TEXT: A random process $\xi(t)$ with discrete time is observed for $t = 1,2,..$ Let the magnitudes $\xi(1), \xi(2),..., \xi(\theta - 1)$ be independent and have equal distribution $F_0(x)$. Let the magnitudes $\xi(\theta), \xi(\theta + 1),...$ be independent too (from each other and from the former values) and have the different distribution $F_1(x)$. The moment θ is not known.
Problem: Find an observation method for which the occurrence of the above effect (change from F_0 to F_1) is announced as soon as possible by a signal. False signals are to be avoided.
Assume that after every signal its correctness is verified; if the signal is right, then the observations are stopped, if it is wrong, then they are continued.
For θ the apriori distribution

$$P(\theta = t) = (1 - p)^{t-1} p \qquad (1)$$

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The detection of spontaneous effects

is supposed, where p is a known constant.
Every observation method is described by the set of the conditional distributions for the ν-moment of the signaling over the effect :

$$P\{\nu \leq t | \xi(s) = x(s)\} = \varphi(t|x^t(s)) \quad ,$$

where the functional φ satisfies the condition

$$\varphi(t|x(s)) = \varphi(t|x^t(s)) \quad .$$

If P only attains the values 0,1, then the observation method is called not randomized.
The distribution (1) together with the conditional distribution for $\xi(t)$ for given θ and with the conditional distribution for ν for fixed $\xi(t)$ determines uniquely the common distribution of $\theta, \xi(t)$ and ν .
Hereby the probability

$$\omega = P(\nu < \theta) \qquad (2)$$

of the occurrence of a false signal and the conditional mathematical expectation of the delay

$$\tau = M(\nu - \theta | \nu \geq \theta) \qquad (3)$$

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The detection of spontaneous effects

for a right signal are defined. Furthermore, let

$$N = M\varkappa$$

be the mathematical expectation of the number $\varkappa$ of false signals up to the moment θ and let

$$\tau_{\varkappa} = M(\nu_1 + \ldots + \nu_{\varkappa+1} - \theta) ,$$

where ν_i is the duration of the i-th observation stage.

Because of (1) it holds $\tau_{\varkappa} = \tau$.

Lemma : If the parameter θ has the distribution (1), then

$$N = \frac{\omega}{1-\omega} . \qquad (4)$$

Let $\pi(t) = P\{\theta \leq t \mid \xi^t(s)\}$ be the aposteriori distribution for θ.

Theorem 1 : If the distribution of the random variable $\pi(t)$ is continuous for every t, then the optimum method is not randomized and consists in observing the process $\pi(t)$ up to the first moment ν for which $\pi(\nu) \geq \pi_1$, where π_1 is calculated by determination of ω.

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The detection of spontaneous effects

Theorem 1 follows from the following theorem on the biased solution in the problem of minimizing of a risk. Assume that the effect occurs with certain probability already before the beginning of the observations:

$$P(\theta = 0) = \tilde{\pi}$$

$$P(\theta = t | \theta > 0) = (1 - p)^{t-1} p \quad , \quad t \geqslant 1 \quad ,$$

Let the nonnegative function $W(t,s)$ be defined by

$$W(t,s) = \begin{cases} W(t-1, s-1) & , \quad t < s \\ a_1(t - s) + a_2 & , \quad t \geqslant s \end{cases} ,$$

where a_i are positive constants, and $W(0,s) < \infty$ for $s < \infty$.

Theorem 2 : If the distributions F_0 and F_1 are not atomical then the biased solution in the problem of minimizing the risk

$$\mathcal{R} = MW(\nu, \theta) \qquad (5)$$

is not randomized and consists in the observation of the process $\tilde{\pi}(t)$ ($\tilde{\pi}(0) = \tilde{\pi}$) up to the first moment ν for which $\tilde{\pi}(\nu) \geqslant \tilde{\pi}_1$, where $\tilde{\pi}_1$

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The detection of spontaneous effects C111/C333

is a certain constant.

The author thanks A.N. Kolmogorov for the subject and advices.
There are 2 Soviet-bloc references and 1 non-Soviet-bloc reference.
The reference to English-language publication reads as follows :
A.Wald, J. Wolfowitz, Ann.of Math. Stat., 21, 82 (1950).

ASSOCIATION: Matematicheskiy institut imeni V.A. Steklova Akademii nauk SSSR (Institute of Mathematics imeni V.A. Steklov of the Academy of Sciences USSR)

PRESENTED: January 21, 1961, by A.N. Kolmogorov, Academician

SUBMITTED: January 18, 1961

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S/020/61/138/005/005/025
C111/C222

/6 61 20

AUTHOR: Shiryayev, A.N.

TITLE: The problem of the most rapid detection of a disturbance in stationary processes

PERIODICAL: Akademiya nauk SSSR. Doklady, v.138,no.5, 1961, 1039-1042

TEXT: The author uses notations of his earlier paper (Ref.1: DAN, 138, no.4 (1961)).
For $t \geq 0$ the random process $\eta(t)$ is considered continuously which satisfies the stochastic equation

$$d\eta(t) = \chi(t-\theta)dt + d\xi(t), \qquad (1)$$

where $\xi(t)$ is a Gaussian process with independent increases, $\xi(0) = 0$, $M\Delta\xi = C\,M(\Delta\xi)^2 = A\Delta t$ while

$$\chi(s) = \begin{cases} 0 \text{ for } s \leq 0 \\ 1 \text{ for } s > 0. \end{cases}$$

The moment θ of the appearance of the disturbance is not known. Problem (given by A.N.Kolmogorov): Find an observation method (cf.(Ref.1)) so that because of the observation of $\eta(t)$ as soon as possible after the appearance of the disturbance its existence is announced by a signal

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(cf. the problem in § 3 of (Ref.2: A.Dvoretzky, J.Kiefer, J.Wolfowitz, Ann.of Math.Stat., 24, no.1 (1953)). Here the occurrence of false signals given before the moment 0 shall be seldom in a certain sense. Variant A: Find a method of giving a signal so that for a given T-mathematical expectation of the time between two false signals the corresponding mean time of retardation $\tau = \tau(T)$ calculated under the assumption that the disturbance relates to the stationary course arising for $\xi(t) = 0$, assumes a minimal value. In the two following equivalent variants B and C it is assumed that it holds

$$\mathfrak{P}(0 < t) = 1 - e^{-\gamma t} \qquad (4)$$

Variant B: For a given N -- mathematical expectation of the number $\mathcal{N}$ of false signals given before the moment 0, find a method of observation for which

$$\tau_{\mathcal{N}} = M\left\{\nu_1 + \ldots + \nu_{\mathcal{N}+1} \mid \theta\right\}$$

is a minimum, where ν_i is the durance of the i-th step of observation.

Variant C: For a given probability $\omega = \mathfrak{P}(\nu < 0)$ find a method of observation with a minimal $\tau(\omega) = M(\nu - \theta \mid \nu > 0)$, where ν -- moment of the disturbance signal.

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The problem of the most rapid detection

Let

$$\pi(t) = \ldots \{ \ldots(t) - 1 \ldots \pi^t(s) \} \qquad (5)$$

be the a posteriori probability of the appearance of the disturbance before the moment t; $\pi^t(s)$ denotes the function $\pi_t(s)$ defined only for $0 \leq s \leq t$.

Theorem 1: The optimal (in the sense of the variants B and C) method consists in the observation of the process $\pi(t)$, $\pi(0) = 0$, until the first reaching of a certain value L which is calculated by a fixing of N or ω. For $\pi(t)$ it holds the stochastic equation

$$d\pi(t) = (\ldots - \pi^2)(1-\pi)dt + \ldots(1-\pi)d\pi_t(t). \qquad (6)$$

Now the author considers methods of observation for which $\tau(T)$ is continuous, the distributions for τ_i are not latticed for $\pi(t) = 0$ and for which for every T it holds

$$\lim \sup \ldots \tau^t(T) - \tau(T) \ldots = 0,$$

where $\tau^t(T)$ is the mathematical expectation of the time of retardation under the assumption that the disturbance appears in the moment t.

Let $M_1 \ldots = 1/2 \ldots t$.

Theorem 2: Among the above methods of observation for a given T that one

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C111/C222

is optimal which is based on the observation of the random process $\xi(t)$, $\xi(0) = 0$.

$$d\xi(t) = \frac{1}{T}\,dt + \sqrt{2}\,d\eta(t) \qquad (11)$$

until the unit level is reached for the first time.

$$\varphi(T) = e^{\gamma}(-\mathrm{Ei}(-\gamma)) - 1 + \gamma \int_0^{\infty} e^{-t}\,\frac{\ln(1+t/\gamma)}{t}\,dt, \qquad (12)$$

where $\gamma = 1/T$ and $-\mathrm{Ei}(-x) = \int_x^{\infty} \frac{e^{-t}}{t}\,dt$, $x \neq 0$, is a tabulated function.

From (12) it follows

$$\varphi(T) = \begin{cases} \ln T - 1 - C + o(1), & T \to \infty \\ T/2 + O(T^2) & T \to 0, \end{cases} \qquad (13)$$

where $C = 0.577\ldots$ -- Eulerian constant.
Finally the author compares the optimal method with the known methods of Wald and Neumann-Pearson. It is stated that for small T the optimal method is approximated very well by the method of Neumann-Pearson,
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The problem of the most rapid detection S/020/61/138/005/005/025
C111/C222

while for large T a good approximation is reached by the successive analysis of Wald by taking the value $A \sim 0$ as the lower bound $A \leq 0$. A table contains numerical values of (T) according to the three methods:

T	0.1	1	10	10^2	10^3	10^4
Optimal method	0.04746	0.34153	1.37173	3.16015	5.34728	7.63502
Successive analysis	0.06324	0.38892	1.44096	3.25994	5.43759	7.71529
Method of H.-P.	0.05	0.44101	1.76845	4.35794	7.73121	11.45836

The author thanks A.N.Kolmogorov for aid. There is 1 table, 1 Soviet-bloc and 1 non Soviet bloc reference. The reference to the English-language publication reads as follows: A.Dvoretzky, J.Kiefer, J.Wolfowitz, Ann.of Math.Stat., 24, no.1 (1953).

ASSOCIATION: Matematicheskiy institut im.V.A.Steklova Akademii nauk SSSR (Mathematical Institute im V.A.Steklov of the Acad.Sci.USSR)
PRESENTED: January 21, 1961, by A.N.Kolmogorov, Academican
SUBMITTED: January 18, 1961

Card 5/5

SHIRYAYEV, A.N. (Moscow)

Optimum methods in problems of quickest detection. Teor. veroiat. i ee prim. 8 no.1:26-51 '63. (MIRA 16:3)
(Probabilities)

18126-63

ACCESSION NR: AP3005659 S/0052/63/008/003/0264/0281

AUTHOR: Shiryayev, A. N. (Moscow) 45

TITLE: Finding a disorder in an industrial process. I

SOURCE: Teoriya veroyatnostey i yeye primeneniya, v. 8, no. 3, 1963, 264-281

TOPIC TAGS: testing hypotheses, false alarm, sequential analysis

ABSTRACT: This paper deals with the application of Wald's sequential analysis for locating the object (the disorder) that may appear with equal probability along any of N directions on the background of steady-state conditions of observation, in which the object is absent. An expression is found for the mean delay time $\tau(T; N)$ for locating the object, which depends on the number of directions N and the mean period T between two successive false alarms. Previous treatments of the problem of locating such an object had found $\tau(T; 1)$ only. "The table was computed by A. A. Mel'nikov, whom the author thanks for his work." Orig. art. has: 61 formulas, 1 table.

Card 1/2

...teoriya veroyatnostey i yeye primeneniya, v. 8, no. 4, 1963, 431-443

... statistical detect..., mathematical analysis, error statistics, error

$$d\eta_t = \chi dt + \sqrt{2}\, d\xi_t \qquad (1)$$

... may take the values + and − and ξ_t ... is the independent Wiener process

$$M\xi_t = D\xi_t = t,$$

... is applied to detect disorders as a function of number of ... observations are selected $m \geq 1$ and n. Observation ... with the first direction. For ... $m \geq n$, ... is established. Otherwise, for ... $m < n$, observation is

is transferred to the second direction. For N = 1, an expression is derived for the mean delay time τ

$$\tau = \frac{m}{2} + \frac{m}{1-\beta}\left(\frac{1}{m}\int_0^m \beta(t)\,dt\right), \tag{3}$$

and the following classical observation method is proved

$$\tau(T) \sim \begin{cases} \frac{3}{2}\ln T, & T \to \infty, \\ \frac{T}{2}, & T \to 0. \end{cases} \tag{4}$$

For the case N > 1, a mean delay time is calculated for a fixed m and h. This yields

$$\tau = \frac{m}{2} + \frac{m}{1-\beta}\left(\frac{1}{m}\int_0^m \beta(t)\,dt\right) + m(N-1)\left(\frac{1}{2} + \frac{\beta}{1-\beta}\right), \tag{5}$$

[illegible] that for a fixed T and N the delay time depends only on one of the [illegible]

$$\tau(T, w) = m\left(\frac{1}{2} + \frac{\beta}{1-\beta}\right), \quad \tau(T) = \min_w \tau(T, w), \tag{6}$$

[illegible]

$$\varkappa(T;\ N) \sim \begin{cases} \frac{N+1}{2} \ln T, & T \to \infty \\ \frac{NT}{2}, & T \to 0. \end{cases} \qquad (8)$$

The validity of this theorem is shown to follow from the first two theorems above and the equation (5). Orig. art. has: 40 equations.

ASSOCIATION: none

SUBMITTED: 23Nov65 ENCL: 00 SUB CODE: MA, EE

NO REF SOV: 000 OTHER: 000

Card 3/3

SHIRYAYEV, A.N. (Moskva)

Detecting disorders in a manufacturing process Part 2. Teor. veroiat. i ee prim. 8 no.4:431-443 '63.

Conditions for the ergodicity of stationary processes in terms of moments of higher order. Ibid.:470-473 '63. (MIRA 17:1)

L 20[illegible]-65 EWT(m)/EWP(n)-2/EWP(t) Pc-4/Pq-4/Pg-4/Pa-4/Pk-4/Pl-4 LJP(c)
ACCESSION NR: AT5004329 S/2517/64/071/000/0021/0025

AUTHORS: Arkin, V. I.; Kolemayev, V. A.; Shiryayev, A. N.

TITLE: Finding optimal controls

SOURCE: AN SSSR. Matematicheskiy institut. Trudy, v. 71, 1964. Sbornik rabot po teorii veroyatnostey (Collection of papers on the theory of probability), 21-25

TOPIC TAGS: optimal control, diffusion

ABSTRACT: The authors consider the problem of controlling (in a sense to be given) the diffusion process ξ, which satisfies

$$d\xi(t) = B[t, \xi, u(t, \xi)]dt + A[t, \xi, v(t, \xi)]d\eta \qquad (1)$$

where η is a Wiener process, and u, v are the controls (consideration being restricted to "Markov" controls). It is assumed that the process $\xi(t)$ with chosen control $\delta = (u, v)$ is determined by the given equation (1) in some simply-connected region G with boundary Γ. Let τ denote the moment of the first exit of the trajectory of the process $\xi(t)$ from G, and let

$$V^{\delta}(t, x) = M^{\delta}_{t,x}\left\{\varphi[\tau, \xi(\tau)] + \int_t^{\tau} F[t, \xi(t), u(t, \xi(t)), v(t, \xi(t))]\,dt\right\} \qquad (2)$$

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L 30069-65
ACCESSION NR: AT5004329

be a functional related to the behavior of the process $\xi(t)$ for a chosen control δ up to the moment of exit from G under the condition that $\xi(t) = x$. Denote

$$V(t, x) = \sup V^{\delta}(t, x), \quad (3)$$

where the supremum is taken over all admissible controls $\delta = (u, v)$. If there exists a control $\bar{\delta} = (\bar{u}, \bar{v})$ for which $V = V^{\bar{\delta}}(t, x)$, it is called optimal. Assuming that an optimal control exists, the authors aim is to give methods for finding optimal controls $(\bar{u}, \bar{v})$ in several cases. Orig. art. has: 19 formulas.

ASSOCIATION: Matematicheskiy institut, AN SSSR (Mathematical Institute, AN SSSR)

SUBMITTED: 00 ENCL: 00 SUB CODE: MA

NO REF SOV: 010 OTHER: 003

Card 2/2

L 10924-65 EWT(d)/EPF(n)-2/EWP(1) Po-4/Pq-4/Pg-4/Pu-4/Pk-4/Pl-4 IJP(c)
ACCESSION NR: AT5004331 S/2517/64/071/000/0035/0045

AUTHORS: Viskov, O. V.; Shiryayev, A. N.

TITLE: Controls leading to optimal stationary states

SOURCE: AN SSSR. Matematicheskiy institut. Trudy, v. 71, 1964. Sbornik rabot po teorii veroyatnostey (Collection of papers on the theory of probability), 35-45

TOPIC TAGS: optimal control, random process, probability theory

ABSTRACT: The authors define a controlled Markov chain as one for which the passage probabilities are defined by

$$P(\xi_{n+1} = x_{n+1} | \xi_n, d_n), \quad n = 0, 1, \ldots \qquad (1)$$

where d_n is an element which may be chosen from a space D as a function of $x_0, \ldots, x_n$. A choice of $d_n(x_0, \ldots, x_n)$ for each $n \geq 0$ is called a control δ; and it is noted that the process (ξ, δ), $\xi = (\xi_1, \xi_2, \ldots)$, $\delta = (d_1, d_2, \ldots)$ is generally not really Markovian (since the further past has too much influence). The control δ is called Markovian if each of the functions d_n depends only on x_n, and homogeneous Markovian if in addition, all d_n are the same. The authors define admissible

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ACCESSION NR: AT5004331

controls; they define optimal controls in terms of a loss function W(x,d) where x is the state of the system and d the chosen control. They answer the question of existence of optimal controls and optimal homogeneous Markov controls for the very special case of finite state and control spaces. Orig. art. has: 28 formulas.

ASSOCIATION: Matematicheskiy institut, AN SSSR (Mathematics Institute, AN SSSR)

SUBMITTED: 00 ENCL: 00 SUB CODE: MA

NO REF SOV: 001 OTHER: 006

Card 2/2

ACCESSION NR: AT5021034 UR/2517/64/071/000/0113/0117

AUTHOR: Shiryayev, A. N.

TITLE: Detection of a randomly appearing target in a multichannel system

SOURCE: AN SSSR. Matematicheskiy institut. Trudy, v. 71. Moscow, 1964. Sbornik rabot po teorii veroyatnostey, 113-117

TOPIC TAGS: probability, detection probability, target discrimination, target recognition

ABSTRACT: The article generalizes the results of an earlier article by the author. It is assumed that one instrument can alternately explore each of N directions. If the k-th direction is being investigated, the result of the observation represents an n-dimensional vector process

$$x^k(t) = \{x_1^k(t), \ldots, x_n^k(t)\}.$$

Card 1/3

L 00003-65 EEO-2/EEI-2/EWA(c)/EWT(d)/EWT(l)/FCS(k)/EWA/T/FSS-2/EWA(c) IJP(c)

ACCESSION NR: AT5021034 UR/2517/64/071/000/0113/0117

AUTHOR: Shiryayev, A. N.

TITLE: Detection of a randomly appearing target in a multichannel system

SOURCE: AN SSSR. Matematicheskiy institut. Trudy, v. 71. Moscow, 1964. Sbornik rabot po teorii veroyatnostey, 113-117

TOPIC TAGS: probability, detection probability, target discrimination, target [illegible]

ABSTRACT: The article generalizes the results of an earlier article by the author. It is assumed that one instrument can alternately explore each of N directions. If the k-th direction is being investigated, the result of the observation represents an n-dimensional vector process $\varphi^k(t) = (\varphi_1^k(t), \ldots, \varphi_n^k(t))$.

Card 1/3

L 00063-65 EEC-2/EED-2/EWA(r)/EWT(d)/EWT(l)/FCS(k)/EWA/T/FCS-2/EWA(d) IJP(c)

ACCESSION NR: AT5021034 UR/2517/64/071/000/0113/0117

AUTHOR: Shiryayev, A. N. 36 35 B+1

TITLE: Detection of a randomly appearing target in a multichannel system

SOURCE: AN SSSR. Matematicheskiy institut. Trudy, v. 71. Moscow, 1964. Sbornik rabot po teorii veroyatnostey, 113-117

TOPIC TAGS: probability, detection probability, target discrimination, target recognition

ABSTRACT: The article generalizes the results of an earlier article by the author. It is assumed that one instrument can alternately explore each of N directions. If the k-th direction is being investigated, the result of the observation represents an n-dimensional vector process $\varphi^k(t) = (\varphi_1^k(t), \ldots, \varphi_n^k(t))$.

Card 1/3

L 60163-65

ACCESSION NR: AT5021034

where n is the number of channels of the instrument doing the scanning. It is then assumed that a target appears at a random moment of time, the conditional distribution of the time of its appearance in any finite interval (provided that it appears therein) being uniform. The character of the distribution -- by directions and channels -- of the target which has appeared is assumed to be [illegible] it is considered that a target which has appeared in any channel does not then vanish.

Let T be the average time between two false alarms and $\tau = \tau(T, N, n)$ the average time lag in target detection -- with given T, number of directions N, and number of channels n in each direction. The problem is to find the relation $\tau = \tau(T, N, n)$ for the case in which the scanning is done cyclically, and the presence or absence of a target is decided, as follows: For each direction k a certain time τ_1 is spent in observation. Examined at the end of this time is the [illegible] $\max_i \Phi_i^k$, and if $\max_i \Phi_i^k > h$ (h is a certain comparison threshold), a target is considered to be present in the given direction. Otherwise, a target [illegible] be absent in this direction and the transition is made to observation [illegible] direction. The Neumann-Pearson method is considered. Orig. art [illegible]

L 60061-65

ACCESSION NR: AT5021034

ASSOCIATION: Institut matematiki Akademii nauk SSSR (Institute of Mathematics, Academy of Sciences SSSR)

SUBMITTED: 00 ENCL: 00 SUB CODE: DC, MA

NR REF SOV: 002 OTHER: 000 JPRS

Card 3/3

L 36971-65 EWT(d) IJP(c)
ACCESSION NR: AP5000568 S/0052/64/009/004/0670/0686 8 B

AUTHOR: Shiryayev, A. N. (Moscow) 16

TITLE: On Markov sufficient statistics in nonadditive Bayesian problems in sequential analysis

SOURCE: Teoriya veroyatnostey i yeye primeneniya, v. 9, no. 4, 1964, 670-686

TOPIC TAGS: Markov sufficient statistics, sufficient statistics, probability, statistics, fastest observation, Bayesian problem, probability theory, observation theory, sequential decision problem, optimal stopping rule, stopping rule

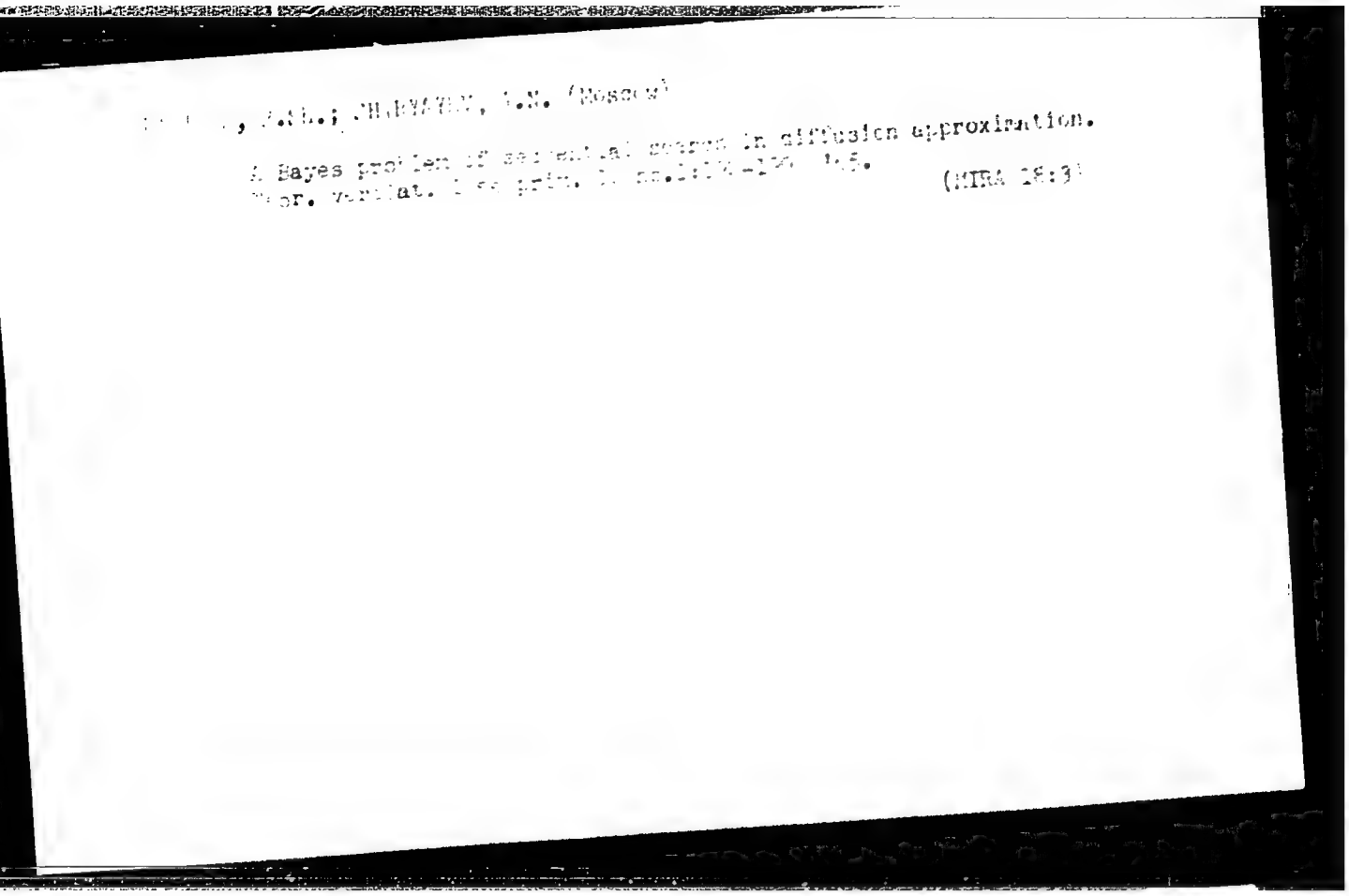
ABSTRACT: The author finds sufficient statistics for the problem of minimizing the average risk of delaying observation for the case in which the distribution of the values of the observed process changes according to a Markov process, the distribution itself is exponential, and the functional defining the risk is nonadditive. Examples are given. Orig. art. has: 39 equations

Card 1/2

LERNER, M.Ye.; GALUSHKO, A.D.; SHIRYAYEVA, A.N.

Alkaline electrolyte for bismuth plating. Ukr.khim.zhur. 30 no.11: 1234-1235 '64. (MIRA 18:2)

1. Kiyevskiy institut Grazhdanskogo vozdushnogo flota.



, V.A.; SHIRYAYEV, A.N. (Moscow)

A Bayes problem of sequential control in diffusion approximation.
Teor. veroiat. i ee prim. 11 no.1:174-181 '66. (MIRA 19:1)

SHIRYAYEV, A.N. (Moscow)

Some exact formulae in the problem on "disharmony". Teor. veroiat. i ee prim. 10 no.2:380-385 '65. (MIRA 18:6)

L 8933-66 EWT(d)/T IJP(c)

ACC NR: AP5028002 SOURCE CODE: UR/0052/65/010/004/0601/0613

AUTHOR: Grigelionis, B.I.; Shiryayev, A.N.

ORG: None

TITLE: Criteria of "truncatedness" of the optimal stopping moment in sequential analysis

SOURCE: Teoriya veroyatnostey i yeye primeneniya, v. 10, no. 4, 1965, 601-613

TOPIC TAGS: mathematic analysis, probability, sequence, random process

ABSTRACT: A substantial number of problems in sequential analysis may be formulated as problems of optimal stopping. In this respect there arises the important question of when the optimal moment of stopping is "truncated." The present article, which appears as a result of the influence of S. N. Ray (Bounds on the maximum sample size of a Bayes sequential procedure, Ann. Math. Statist., 36, 3 (1965), 859-878), presents the general criteria of truncatedness. The generalization of the results of Ray extends in several directions. First, the authors examine a more general situation in the sense that the unknown parameter may itself be a random process, and the results of the observations are not necessarily independent. Secondly, the authors examine the case of sequential planning of experiments. With the aid of the results obtained, as applied to the so-called problem of "disruption," the authors find the conditions at which the optimal moment of stopping is "truncated" and indicate the exact bound boundary of the "truncation." Authors are indebted to G. Chernov and S. Ray who sent a print of their work. Orig. art. has: 18 formulas.

SUB CODE: MA / SUBM DATE: 06Apr65 / ORIG REF: 006 / OTH REF: 007

Card 1/1

ACC NR: AP6034913 SOURCE CODE: UR/0406/66/002/003/0003/0022

AUTHOR: Shiryayev, A. N.

ORG: none

TITLE: Stochastic equations of nonlinear filtration of intermittent Markov processes

SOURCE: Problemy peredachi informatsii, v. 2, no. 3, 1966, 3-22

TOPIC TAGS: Markov process, stochastic process, filtration, nonlinear differential equation, probability theory

ABSTRACT: Let (θ_t, η_t) be parameters of a Markov process, where θ_t is an unobservable component occurring as an intermittent Markov process, and η_t is an observable component satisfying the equation

$$d\eta_t = A(\theta_t, \eta_t, t)dt + B(\eta_t, t)dW_t, \eta_0 = 0,$$

where W_t is a standard Weiner process $(W_0 = 0, M\Delta W_t = 0, M(\Delta W_t)^2 = \Delta t)$, not dependent on the process θ_t. Stochastic differential equations for the aposterior probabilities $\pi_t(\mathfrak{A}), \mathfrak{A} \in \mathfrak{X}, 0 \leqslant t \leqslant T$, where

$$\pi_t(\mathfrak{A}) = P(\theta_t(\omega) \in \mathfrak{A} / \eta_0^t), \pi_0(\mathfrak{A}) = p_0(\mathfrak{A})$$

are defined and proved, providing sufficient statistics in intermittent problems of

UDC: 519.27

Card 1/3

ACC NR: AP6034913

nonlinear filtration, extrapolation, in problems of optimal control, image recognition, etc. The proposed stochastic differential equations are similar to those described by K. Ito (A stochastic integral equation. Proc. Jap. Acad., 1964, 1, 4, 32--35). The basic result of the article stems from Bayes' theorem. The author proves the theorem: Let (θ_t, η_t) be a two-dimensional Markov process, where an unobservable component generates the Markov process satisfying the condition that, for $t \downarrow s$,

$$\frac{p(s, x; t, \mathfrak{A}) - \chi_{\mathfrak{A}}(x)}{t-s} \to q(s, x, \mathfrak{A})$$

is uniform within $(s, x, \mathfrak{A})$, where $\chi_{\mathfrak{A}}(x)$ is the characteristic function of the set $\mathfrak{A} \in \mathfrak{X}$, and the condition that the function $q(s, x, \mathfrak{A})$ for fixed $(x, \mathfrak{A})$ is continuous upon s uniform over $(x, \mathfrak{A})$. Let also η_t be an observable component (not, in general, generating a Markov process) satisfying the given definition (see above), where coefficients $A(\cdot)$ and $B(\cdot)$ obey the condition that $A(\theta, \eta, t)$ for all θ and $B(\eta, t)$ are continuous for the set of all (η, t) and

$$|A(\theta, \eta', t) - A(\theta, \eta'', t)| \leqslant K|\eta' - \eta''|,$$
$$|B(\eta', t) - B(\eta'', t)| \leqslant K|\eta' - \eta''|.$$

Then for any measurable set $\mathfrak{A} \in \mathfrak{X}$, the aposterior probability $\pi_t(\mathfrak{A})$ is given by the stochastic differential

$$d\pi_t(\mathfrak{A}) = \left[\int_{\mathfrak{A}} q(t, x, \mathfrak{A})\pi_t(dx)\right]dt + \left[\int_{\mathfrak{A}} \frac{A(x, \eta_t, t) - \bar{A}}{B(\eta_t, t)}\pi_t(dx)\right]\frac{d\eta_t - \bar{A}dt}{B(\eta_t, t)},$$

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ACC NR: AP6034913

where

$$\bar{A} = \bar{A}(\pi_t, \eta_t, t) = \int_X A(x, \eta_t, t)\pi_t(dx).$$

Special cases and extensions for which the theorem applies are discussed and a proof of the theorem is given. Orig. art. has: 80 equations.

SUB CODE: 12/ SUBM DATE: 20Jan66/ ORIG REF: 011/ OTH REF: 005

Card 3/3

YERMAKOV, Nikolay Ivanovich; SHIRYAYEV, A.P., inzhener, redaktor; VERINA, G.P., tekhnicheskiy redaktor

[Testing electric machinery of electric rolling stock in depots; the work practice of the Tiflis depot of the Transcaucasian railroad] Ispytaniia elektricheskikh mashin elektropodvizhnogo sostava v depo; opyt raboty elektrovoznogo depo Tbilisi Zakavkazskoi zheleznoi dorogi. Moskva, Gos. transp. zhel-dor. izd-vo, 1956. 64 p. (MLRA 9:10)
(Electric railroads--Equipmentand supplies)

KARTASHEV, V.I.; SUKHOPUDSKIY, N.D.; SHIRYAYEV, A.P., inzhener; STIKHNO, T.V., tekhnicheskiy redaktor.

[Insulating and testing d.c. traction engines for rolling stock] Izoliatsiia mashin elektropodvizhnogo sostava postoiannogo toka i ee ispytaniia. Moskva, Gos.transp.zhel-dor.izd-vo 1956. 106 p. (Moscow, Vsesoiuznyi nauchno-issledovatel'skii institut zheleznodorozhnogo transporta. Trudy, no.128) (MLRA 10:1)
(Electric locomotives) (Insulating materials)

OZEMBLOVSKIY, Chaslav Sigizmundovich; KUDRYAVTSEV, Ivan Ivanovich; FAMINSKIY, Georgiy Viktorovich; BYCHKOVSKIY, A.V., kandidat tekhnicheskikh nauk, redaktor; SHIRYAYEV, A.P., inzhener, redaktor; VERINA, G.P., tekhnicheskiy redaktor

[Current repair and maintenance of electric locomotives] Tekushchii remont i soderzhanie elektrovozov. Moskva, Gos. transp. zhel-dor. izd-vo, 1956. 319 p. (MLRA 10:3)
(Electric locomotives--Repairs)

SAVCHENKO, Vsevolod Viktorovich; [redacted]., inzhener, redaktor;
BOBROVA, Ye.N., tekhnicheskiy redaktor

[Impregnation of insulation of windings for electric traction machinery] Propitka izoliatsii obmotok tiagovykh elektricheskikh mashin. Moskva, Gos.transp.zhel-dor. izd-vo, 1957. 101 p.
(Electric machinery) (MLRA 10:9)

VORONIN, A.V., kand.tekhn.nauk, red.; SIDOROV, N.I., inzh., red.; SHIRYAYEV, A.P., inzh., red.; YERINA, G.P., tekhn.red.

[Electric traction for foreign railroads on single-phase current; a collection of papers. Translations] Elektricheskaia tiaga zarubezhnykh zheleznykh dorog na odnofaznom toke; sbornik materialov. Moskva, Gos.transp.zhel-dor. izd-vo, 1957. 2?4 p. (MIRA 11:7)
(Electric railroads)

OSIPOV, Sergey Ivanovich; MIKONOV, Konstantin Aleksandrovich; SHIRYAYEV, A.P., inzh., red.; SIDOROV, N.I., inzh., red.; BOBROVA, Ye.N., tekhn.red.

[Principles of electric traction] Osnovy elektricheskoi tiagi. Moskva, Gos.transp.zhel-dor.izd-vo, 1957. 342 p. (MIRA 10:12)
(Electric railroads)

KHROMOV, Gennadiy Andreyevich, SHATSILLO, Anton Adamovich, SHIRYAYEV, A.P., inzh.red.; BOBROVA, Ye.N., tekhn.red.

[Machining mounted wheel pairs of electric motor cars] Obtochka kolesnykh par elektrosektsii bez vykatki. Moskva, Gos. transp. zheldor. izd-vo, 1958. 27 p. (MIRA 11:9)
(Car wheels)

SHIRYAYEV

NECHAYEV, Nikolay Aleksandrovich; RYSHKOVSKIY, Isaak Yakovlevich; SHIRYAYEV, K.P., inzh., red.; BOBROVA, Ye.N., tekhn.red.

[Automatic governors of generator excitation in railroad electric power stations] Avtomaticheskie regulitory vozbuzhdeniia generatorov zheleznodorozhnykh elektrostantsii. Moskva, Gos. transp. zhel.-dor. izd-vo, 1958. 33 p. (MIRA 11:4)
(Electric generators) (Automatic control)

GAMBURTSEVA, L.V., inzh., red.; SHIRYAYEV, A.P., inzh., red.; BOBROVA, Ye.M., tekhn.red.

[Experience in maintaining and repairing electric sections] Opyt soderzhaniia i remonta elektrosektsii. Moskva, Gos.transp.zhel.-dor. izd-vo, 1958. 55 p. (MIRA 11:2)
(Electric railroads--Maintenance and repair)

GURETSKIY, S.A.; MIROMOV, K.A.; SHIRYAYEV, A.P., red., inzh.; BOBROVA, Ye.N., tekhn.red.

[Operating electric locomotives with interchangeable crews] Obsluzhivanie elektrovozov smennymi brigadami. Moskva, Gos. transp.zhel-dor.izd-vo, 1958. 66 p. (MIRA 11:12)
(Railroads--Management)

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[Handbook on the maintenance of electric railroad rolling stock] Pamiatka po ukhodu za elektropodvizhnym sostavom. Moskva, Gos. transp. zhel-dor. izd-vo, 1958. 143 p. (MIRA 11:12)
(Electric railways--Rolling stock)

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[The ER1 electric train] Elektropoezd ER1. Moskva, Gos. transp. zhel-dor. izd-vo, 1958. 165 p. (MIRA 12:1)
(Electric railroads)

SIDOROV, Nikolay Ivanovich; PRUDYUS, Anatoliy Semenovich; SHIRYAYEV, A.P., inzh., red.; VERINA, G.P., tekhn.red.

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(Electric locomotives)

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Stopping of skidding of locomotive wheel-pairs by the partial braking method. Elek.i tepl.tiaga 3 no.8:21-23 Ag '59. (MIRA 12:12)

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[Protection of a contact network from short circuit currents] Zashchita ot tokov korotkogo zamykaniia v kontaktnoi seti. Pod obshchei red. G.G.Markvardta. Moskva, Vses.izdatel'sko-poligr. ob"edinenie M-va putei soobshcheniia, 1960. 258 p.
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[Electric circuits of the N60 electric locomotive] Elektricheskie skhemy elektrovoza N60. Moskva, Transzheldorizdat, 1962. 41 p. (MIRA 15:6)

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RUBCHINSKIY, Zigmund Moiseyevich, kand. tekhn. nauk; TASTEVEN, Yevgeniy Edmundovich, inzh.; SHIRYAYEV, Arkadiy Pavlovich, inzh.; DOLMATOV, A.A., kand. tekhn. nauk, retsenzent; LIBMAN, G.M., inzh., retsenzent; NAKHODKIN, M.D., kand. tekhn. nauk, retsenzent; SAZONOV, I.A., inzh., retsenzent; TRAKHTMAN, L.M., kand. tekhn. nauk, retsenzent; ZUBLEVSKIY, S.M., inzh., red.; RAKOV, V.A., inzh., red.; USENKO, L.A., tekhn. red.

[Design, arrangement, and working principles of the rolling stock of multiple-unit trains]Ustroistvo i rabota motorvagonnogo podvizhnogo sostava. Moskva, Transzheldorizdat, 1962. 335 p. (MIRA 16:1)
(Electric railroads--Rolling stock)

RUBCHINSKIY, Zigmund Moiseyevich, kand.tekhn. nauk; TASTEVEN, Yevgeniy Edmundovich, inzh.; SHIRYAYEV, Arkadiy Pavlovich, inzh.; DOLMATOV, A.A., kand. tekhn. nauk, retsenzent; LIBMAN, G.M., inzh., retsenzent; NAKHODKIN, M.D., kand. tekhn.nauk, retsenzent; SAZONOV, I.A., inzh., retsenzent; RAKOV, V.A., inzh., red.; ZUBLEVSKIY, S.M., inzh., red.; USENKO, L.A., tekhn. red.

[Design, arrangement, and working principles of the rolling stock of multiple-unit trains]Ustroistvo i rabota motorvagonnogo podvizhnogo sostava. Moskva, Transzheldorizdat, 1962. 335 p. (MIRA 16:1)

(Electric railroads--Rolling stock)

SHIRYAYEV, A.S.

Engineer Borodzich is not right. Rech. transp. 21 no.1:51 Ja '62. (MIRA 16:8)
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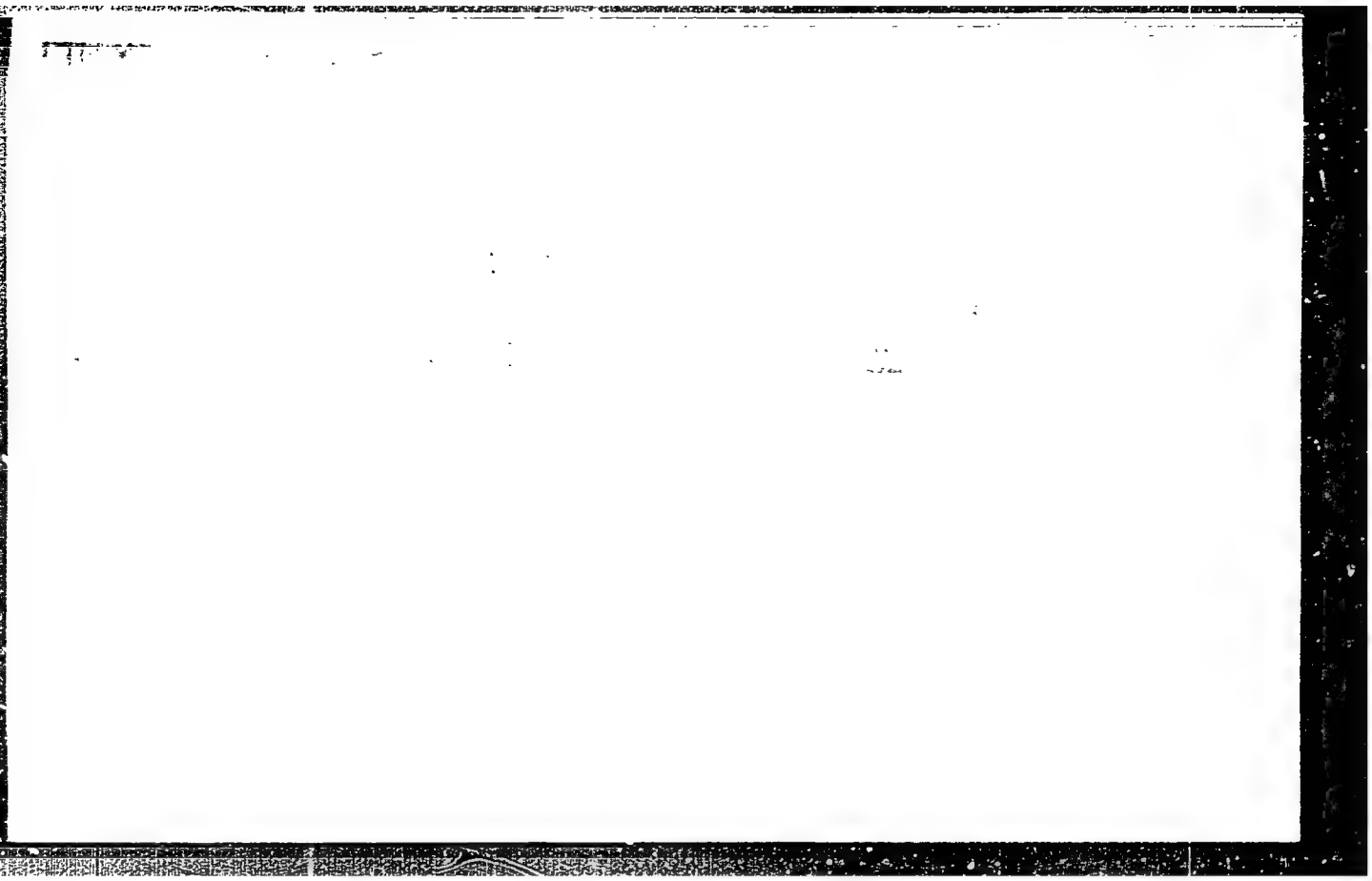

IVANOVSKIY, G.F.; SHIMAYEV, A.T.

Sorption of hydrogen on a condensed titanium film at low pressures. Zhur.fiz.khim. 39 no.10:2464-2469 O '65.
(MIRA 18:12)

1. Submitted July 11, 1964.

(A) L 27860-66 EWT(m)/T/EWP(t)/EWP(b)/EWA(c) IJP(c) JD

ACC NR: AP5027175 SOURCE CODE: UR/0075/65/039/010/2464/2469

AUTHOR: Ivanovskiy, G. F.; Shiryayev, A. T.

ORG: None

TITLE: Sorption of hydrogen by a condensed titanium film at low pressures

SOURCE: Zhurnal fizicheskoy khimii, v. 39, no. 10, 1965, 2464-2469

TOPIC TAGS: hydrogen, titanium, gas pressure, sorption, spectrometry, metal film

ABSTRACT: A mass-spectrometric method was used to study the equilibrium pressures of hydrogen over condensed titanium films at pressures of 10^{-10} to 10^{-7} mm Hg and temperatures of 77.2, 113.4, and 178K. At all temperatures, the titanium-hydrogen systems were found to form solutions which obeyed the equation of I. R. Krichevskiy:

$$RT \ln (p_{H_2}^{1/2} / N_H) = RT \ln k_H + A (1 - N_{Ti}^2),$$

where p is the hydrogen pressure, N_H the atomic fraction of dissolved hydrogen, k_H a constant, and N_{Ti} the atomic fraction of titanium. Thus, titanium forms concentrated solutions with hydrogen even at low temperatures, and the process of dissolution occurs relatively fast and would not agree with estimates of solution rates which could be obtained by extrapolating the values of the diffusion coefficient of hydrogen in titanium into the region of low temperatures. The applicability of the above equation to liquid-liquid and gas-liquid systems and to concentrated gas-metal solutions

Card 1/2 UDC: 541.183+541.17

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ACC NR: AP5027175

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is demonstrated. Orig. art. has: 9 figures and 2 equations.

SUB CODE: 07,20 / SUBM DATE: 11Jul64 / ORIG REF: 006 / OTH REF: 006

Card 2/2

SOV/35-59-10-7844

Translation from: Referativnyy zhurnal. Astronomiya i Geodeziya, 1959, Nr 10, pp 21-22 (USSR)

AUTHOR: Shiryayev, A.V.

TITLE: The Determination of Longitudes of Fundamental Reference Points of the USSR in the Far East

PERIODICAL: Uch. zap. LGU, 1958, Nr 273, pp 170-207

ABSTRACT: The determination of longitudes of fundamental points in the Far East was part of a complete cycle of longitudinal studies, carried out by the author from 1933 - 1939. Into this cycle enter 4 series of observations carried out in Pulkovo to determine the personal error of the observer, 2 series of observations carried out at the astronomical observatory of the Leningrad University, 1 series of observations carried out in Omsk, and 4 series carried out at points in the Far East. The observations were carried out with the aid of Bamberg's transit telescope Nr 11675 (D = 89 mm, F = 300 mm). As an operating chronometer, the Narden chronometer Nr 2779 was used. Time signals were recorded by the Cook-Preypitch method. The registration of transit moments was carried out with the aid of a Gipp's weight chronograph.

Card 1/3

SOV/35-59-10-7844

The Determination of Longitudes of Fundamental Reference Points of the USSR in the Far East

The determination of the longitude in one evening consisted as a rule of three receptions of radio signals and a 4-hour set of stellar observations contained between them. The observation program covered a large number of circumpolar stars, and consisted of stars of Eichelberger's fundamental catalogue. The processing was also accomplished by the methods of catalogues FK3 and KGZ. The determination of the longitudes was carried out by three methods. The first method consisted in calculating the mean time correction by the received radio signals and the reduction of this correction to the mean moment of observations of stars using the run of the chronometer, calculated from the receptions of radio signals. In the second method the run of the clocks was calculated not only from radio signals, but also from observations of stars, and with this rate of the clock's run the mean correction of the observation of stars was converted into moments of all the received radio signals. The third method consisted in dividing the evening of observations into parts contained between the received radio signals. It is shown that the resulting longitudinal errors, usually calculated according to the second and third methods, are minimized, since the longitudes determined from the reception of various stations during the same night of observations cannot be considered independent. The final values of longitudes of the fundamental points, calculated according to the first method and based on the Soviet system of composite moments are as follows: Voronezh point -

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SOV/35-59-10-7844

The Determination of Longitudes of Fundamental Reference Points of the USSR in the Far East

$\lambda = 9^h00^m48^s.432 \pm 0^s.0038$ (probable error); Chernigov point - $\lambda = 9^h32^m46^s.317 \pm$ $\pm 0^s.0046$. It is concluded that, in longitudinal studies, the deciding factor is the quality of the transit telescope and that the fundamental points can be determined with the aid of expeditional equipment, not necessarily of too high a quality. Seventeen tables are cited which contain data of the individual differences between observers, the results of determining the errors of instruments, the values of the systematic differences $k_{B.K.} - k_{H.K.}$, $k_{ow} - k_{wo}$, $i_{ow} - i_{wo}$, $U_{ow} - U_{wo}$, the final corrections of the chronometer and longitude, errors in the determinations of time, azimuths and the receptions of signals. All quantities are cited separately for the various points, and wherever possible in the systems of the three catalogues (Eichelberger's, FK3 and KGZ). Bibl. 17 titles.

K.N. Tavastsherna

Card 3/3

PHASE I BOOK EXPLOITATION SOV/4333

Leningrad. Universitet

Mezhdunarodnyy geofizicheskiy god; sbornik statey i materialov (International Geophysical Year; Collected Articles and Materials) [Leningrad] Izd-vo Leningradskogo univ., 1960. 222 p. 1,500 copies printed.

Resp. Ed.: K. Ya. Kondrat'yev, Professor; Ed.: Z.I. Tsar'kova; Tech. Ed.: Ye. G. Zhukova.

PURPOSE: This publication is intended for scientific research workers and graduate students in the fields of astronomy, geophysics, and geography.

COVERAGE: This collection of 18 articles presents the first results of work performed by the members of the faculty of the Leningradskiy universitet (Leningrad University) under the IGY program. Individual articles deal with the problems of the physics of atmosphere, the conditions for the observation of noctilucent clouds, and the analysis of the radiation balance. Other articles present data gathered by a comprehensive expedition for studies in geomorphology,

Card 1/5

S/035/61/000/004/010/058
A001/A101

AUTHOR: Shiryayev, A. V.

TITLE: On the work of the time service of the Astronomical Observatory at LGU from January 1, 1956, to May 1, 1958

PERIODICAL: Referativnyy zhurnal. Astronomiya i Geodeziya, no. 4, 1961, 16, abstract 4A203 ("Tr. 14-y Astrometr. konferentsii SSSR, 1958". Moskow-Leningrad, AN SSSR, 1960, 64-65, Engl. summary)

TEXT: The Time Service conducted: 1) Preparation of equipment for the work according to the IGY program; the Bamberg transit instrument no. 11,675 was reconstructed, cable communication with the ВНИИМ (VNIIM) was established, reception of signals on a chronoscope was organized. 2) Observations for a new determination of the longitude of the LGU Astronomical Observatory and for intensifying the association between the longitude centers of the "Leningrad triangle" (Pulkovo, VNIIM, Observatory of the Leningrad University); altogether 3,653 observations of stars were made. 3) Current observations of the Time Service according to the IGY program; 6,138 observations of stars were made, radio signals of eight stations are regularly received. D. P.

[Abstractor's note: Complete translation]

Card 1/1

SHIRYAYEV, A.V.; MISHCHENKO, M.P.

Conclusion of a four-year series of observations on a photoelectric transit instrument and preliminary results. Uch.zap.LGU no.307:210-229 '62. (MIRA 15:9)
(Transit instruments) (Stars--Observations)

MISHCHENKO, M.P.; SHIRYAYEV, A.V.

Catalog of the right ascensions of 488 stars in the Program of the Time Services of the U.S.S.R., observed in 1957-1960 with the Bamberg photoelectric transit instrument No.11675. Uch.zap. LGU no.326:127-162 '64. (MIRA 18:5)

SHIRYAYEV, A.V.; MISHCHENKO, M.P.

Corrections of right ascentions of 82 stars in the longitude determination program observed with the no.11675 Bamberg transit instrument in 1956 and 1957. Uch.zap.LGU no.328:160-166 '65.

Investigating some errors in astronomical determinations of clock corrections according to the data of observations by the time service of the Leningrad University. Ibid.:167-174

(MIRA 18:10)

SHIRYAYEV., B.

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K Problemam Intelligentsii SSSR (On the Problem of the Intelligentsia of the USSR, By) B. Shiryayev, N. Koshevatyy. Myunkhen, 1955.

77 P. (Institut PO Izucheniye Istorii i Kul'tury SSSR. Issledovaniya i Materialy. Seriya 2 (Rotatornyye Izd.) - No. 31.

Summaries in English, German, and French.

Bibliographical Footnotes.

SHIRYAYEV, B. (Moskva)

Motor-driven time relay used in photographic printing.
Sov. foto 19 no.5:62-63 My '59. (MIRA 12:9)
(Photography--Printing processes)
(Electric relays)